

**Assistance Agreement Quarterly Report
for the period of October 1, 2000 to December 31, 2000**

January 3, 2001

Fresno, California, Particulate Matter (PM) Supersite Monitoring Program
EPA Assistance Agreement No. R-82805701-01

WORK PROGRESS AND STATUS

Fourth quarter 2000 activities are summarized based on applicable tasks stated in the Fresno Supersite QAPP.

Task 1 – Equipment Procurement and Installation. A new instrument rack to hold continuous instruments was installed during the week of 11/12/00. A continuous nitric acid monitor was installed on 11/17/00. A continuous Luminol NO₂/PAN monitor was installed on 11/29/00. Both instruments began operation on 12/1/00.

Task 2 – Network Operations and Data Processing.

- The California Regional PM_{2.5}/PM₁₀ Air Quality Study's winter intensive study began on 12/1/00 and will continue through 1/31/01. As a result, additional measurements are being taken at the Fresno Supersite, including:
 - Filter mass and chemistry (15 episode days only). Sampling frequency increased to five times per day (from once per day) for mass, elements, ions, and carbon. Added daily, five times per day sampling for HNO₃ and NH₃ by denuder difference.
 - Organic gases and particles (15 episode days only). Daily, four times per day sampling for carbonyls, light hydrocarbons (C₂ to C₁₂), heavy hydrocarbons (C₁₀ to C₂₀, Tenax samplers), and PM_{2.5} organic compounds (filter/PUF/XAD).
 - Continuous particle mass and chemistry (12/1/00 to 1/31/01). Individual particle size and chemistry by U.C. Riverside's time of flight mass spectrometer.
 - Particle mass and size (15 episode days only). Mass and size distribution from 0.054 µm to 15 µm in eight size fractions by MOUDI samplers with Teflon filters for mass, elements, ions, and carbon size distributions.
- USEPA and Battelle are conducting instrument testing at the Fresno Supersite between 12/15/00 and 1/15/01 for collocated PM_{2.5} mass, carbon, nitrate, PAH, light scattering, light absorption, and particle size measurements. These tests are part of their Environmental Technology Verification (ETV) program.

Task 3 – Laboratory Measurements. PM_{2.5} mass and chemistry analyses of filter samples from FRM and chemical speciation samplers collected every sixth day between 7/7/99 and 4/30/00 were completed.

Task 4 – Quality Assurance.

- Participated in the second CRPAQS field audit on 11/29/00 and 11/30/00. Field operators are following standard operating procedures. Remedial actions were taken to correct or explain flow discrepancies.
- Continued to assemble standard operating procedures for the field measurements.
- Drafted and revised a Quality Assurance Project Plan (QAPP) and submitted it to USEPA on 12/22/00.

Task 5 – Data Validation and Data Analysis. Level I data validation was completed for continuous gas, particle mass and chemistry, light scattering, light absorption, particle size, and meteorology measurements through 8/31/00.

Task 6 – Management and Reporting. A QAPP was submitted to USEPA on 12/22/00. The principal investigators visited the Fresno Supersite from 12/27/00 to 12/29/00.

PERSONNEL

There have been no changes of key personnel related this study.

EXPENDITURES

Budget expenditures to date are on target, and no revisions to the approved budget are expected to be necessary at this time.

QUALITY ASSURANCE

The principal investigators participated in the second CRPAQS field audit on 11/29/00 and 11/30/00. Standard operating procedures continue to be assembled for the field measurements. A Quality Assurance Project Plan (QAPP) was drafted and revised during this quarter, and it was submitted to USEPA on 12/22/00.

RESULTS

For an in-depth discussion of results thus far, please refer to the attached copy of a peer-reviewed article by Watson et al. (2000) entitled “Air Quality Measurements from the Fresno

that was published in the *Journal of the Air & Waste Management Association*, vol. 50, no. 8, pp. 1321-1334.

PLANNED ACTIVITIES FOR THE FORTHCOMING QUARTER:

During the first quarter of 2001, the principal investigators plan to: 1) continue assembling standard operating procedures, 2) define data validation criteria, 3) interact with the California Air Resources Board to finalize a database structure, and 4) complete two manuscripts and submit them for journal publication.

PUBLICATIONS AND PRESENTATIONS:

Dr. Chow presented an “Overview of the Fresno Supersite” at the *Seventh International Conference on Atmospheric Sciences and Applications to Air Quality* in Taipei, Taiwan, on 10/31/00 where she was an invited speaker. A manuscript is being prepared for submission to the *Atmospheric Environment* journal.

Drs. Watson and Chow presented a “Comparison and Evaluation of In-Situ and Filter Carbon Measurements at the Fresno Supersite” at the *Seventh International Conference on Carbonaceous Particles in the Atmosphere* in San Juan, Puerto Rico, on 11/28/00. A manuscript is being prepared for submission to the *Journal of Geophysical Research*.

QUARTERLY REPORT SUMMARY:

See attached.